

Hospitalized patients across the life span often experience pain. Prevalence rates vary greatly but suggest that pain of moderate to excruciating intensities exists in 20 to 84% of the hospitalized patients and that pain is unrelieved in at least 60% of them (e.g., Cornaglia, Massimo, Haupt, Melodia, Sizemore, & Benedetti, 1984; Donovan & Dillon, 1987; Donovan, Dillon, & McGuire, 1987; Hester, Foster, Kristensen, & Bergstrom, 1989; Marks & Sachar, 1973; Perry, Heidrich, & Ramos, 1981; Portenoy & Hagen, 1990; Puntillo, 1990). These findings suggest that pain management approaches are inadequate for the majority of hospitalized patients.

Why treatment is inadequate has concerned researchers particularly over the last decade. Despite the explication of several contributing factors, recent findings on the state of clinical practice suggest that the treatment of pain remains inadequate. Current clinical practice needs to change; how change might occur most effectively and efficiently is a crucial question for researchers dedicated to studying pain.

Typically reports on undertreatment of pain stress three factors: *patient underreporting* (Copp, 1993; Melzack, Abbott, Zackon, Mulder, & Davis, 1987) and *concealment* (Jacox, 1979), *physician underprescription of analgesics* (e.g., Beyer, DeGood, Ashley, & Russell, 1983; Donovan & Dillon, 1987; Eland & Anderson, 1977; Foster & Hester, 1989a, 1989b, 1990a, 1990b; Marks & Sachar, 1973), and *nurse underadministration of analgesics* (Beyer et al., 1983; Faherty & Grier, 1984; Foster & Hester, 1989a, 1989b, 1990a, 1990b; Melzack et al., 1987; Schechter, Allen, & Hanson, 1986).

Inadequate analgesic management encompasses not only the patient, physician, and nurse but also the organization and society. The model in Figure 7.1 provides a comprehensive framework for examining current pain management practice issues. This conceptual model functions like a kaleidoscope, each mosaic revealing a different perspective on pain management. The overlap among the patient, nurse, and physician represents pain management. Greater overlap indicates better pain management. When the patient, physician, and nurse have different goals for pain management, the overlap is likely to be small or nonexistent. But the responsibility for adequate pain

management does not lie just with the patient, physician, and nurse; the context, i.e., the organization and society, also is responsible for pain management. By examining the state of the science through this theoretical perspective, strategies for changing current practice may evolve.

State of the Science

The Patient

Patients often are not prepared for pain and how to manage it. They are uninformed on how to communicate about pain and are unaware of the options available to manage it.

Patient Expectations

Patient expectations may affect their behavior in seeking professional help when they have pain. Of 259 postoperative patients, 4% expected no pain; 12%, mild pain; and 56%, moderate to unbearable pain but 27% didn't know how much pain to expect (Owen, McMillan, & Rogowski, 1990). Preoperatively, patients significantly underestimated the amount pain that occurred postoperatively. The work of Carr (1990) confirmed the findings of Owen et al. (1990). She found that 76% of the patients expected considerably less pain than they experienced. These findings suggest that patients are not prepared for the amount of pain that may occur postoperatively.

Most (74%) cancer patients did not remember receiving any information about the source or expected course of pain (Ahles, Blanchard, & Ruck-deschel, 1983). According to Watt-Watson, Evernden, and Lawson (1990), most parents (75%) of pediatric patients were told about procedures but not why they were being done (43%), how they were being done (44%), and that the procedures might hurt (57%). Seventy percent of the parents reported they were not told how they could help their children. Not being told is a more severe problem for patients (e.g., with cognitive impairments) who do not understand why painful treatments and procedures are being done; they may feel a lack of control over what is happening (Beales, 1983). This problem is likely to be most prevalent among children and cognitively impaired elderly patients.

Patient Communication

The subjective aspect of pain requires the involvement of patients, when possible, and their families in assessing and managing it. Patients, however, often do not initiate reports of pain; in fact, they often conceal pain (Atchison, Guercio, & Monaco, 1986; Jacox, 1979). Patients may not re-report pain because they think the pain is not severe enough (Taylor & Curran, 1985). According to Perry et al. (1981), more than 75% of burn patients with severe to excruciating pain did not ask for pain medications even though they believed medications would have been helpful. Patients often defer reporting pain; they do not want to distract the health care provider from other responsibilities (Cleeland, 1984). They may deny pain (Eland & Anderson, 1977; Favaloro & Touzel, 1990). Further, they may fear that the occurrence of pain means that their disease is getting worse. In a study by Ahles et al. (1983), 61% of the patients were afraid that pain meant their condition was deteriorating. Watt-Watson et al. (1990) highlighted this dilemma for parents who served as advocates for their children: "I'm afraid to tell the doctors about his pain because I know it will mean more tests" (p. 346).

Although patients often conceal their pain (Jacox, 1979), Owen et al. (1990) reported that most postoperative patients believed they would request medication when having some to severe pain. Many patients expected moderate to complete pain relief from medications. Most patients expected to receive their pain medications immediately (unless the nurse had an emergency) (Owen et al., 1990). Some patients (21%) expected to receive their medications when the nurse wasn't busy. Burn patients thought health care providers were afraid to give medications for fear of dependency or loss of drug's effectiveness (Perry et al., 1981).

Several groups of patients are unable to express their concerns about pain to health care providers: preverbal children; developmentally, cognitively, and sensory impaired patients; and non-English speaking patients. Some patients temporarily lose their capability to communicate verbally when, for example, they are intubated or sedated. In a study by Puntillo (1990), 80% of the patients had endotracheal tubes for a period of time during their stay in intensive care. Although they were unable to ask for pain medication, some patients used other strategies such as grabbing the nurse's hand. Patients in Puntillo's (1990) study thought the staff should just assume that the patient had pain and treat it. The difficulty for nonverbal patients to communicate about pain and their need for treatment is dramatically described in a book written by a patient with Guillain-Barré syndrome af-

ter her extended stay in intensive care (Baier & Schomaker, 1990).

Patient Preferences

Patient preferences for pain management include the use of both pharmacologic and nonpharmacologic approaches. Several studies described children's perceptions of what helps when they have pain. The two most consistently reported strategies preferred by children 5 - 17 years of age are medication and parental presence, especially mother's presence (Abu-Saad, 1984a, 1984b, 1984c; Adams, 1990; Branson, McGrath, Craig, Rubin, & Vair, 1990; Hester, 1987, 1989; Hester & Ray, 1987; Jerrett, 1985; Savedra, Gibbons, Tesler, Ward, & Wegner, 1982; Savedra, Tesler, Ward, & Wegner, 1988; Tesler, Wegner, Savedra, Gibbons, & Ward, 1981). According to Watt-Watson et al. (1990), 86% of the parents preferred to stay with their children and to touch and comfort them but they lacked professional guidance on what they should do.

Brown (1986) identified assistance with pain as one of eight themes that emerged when adult patients described experiences in which they felt cared for by nurses. Assistance with pain included (a) direct actions by the nurse such as the provision of medication or modification of a procedure to reduce pain and (b) encouragement of patient management through strategies such as relaxation. Adults in Puntillo's (1990) study preferred medication and the closeness and comfort of family or staff. Reports from cancer and medical-surgical patients suggested that analgesics, immobilization, sleep/rest, and heat were effective in reducing pain (Donovan & Dillon, 1987; Donovan et al., 1987). For cancer outpatients, the most effective strategies were analgesics and positioning (Barbour, McGuire, & Kirchhoff, 1986; Bressler, Hange, & McGuire, 1986). For most patients in palliative care, pain control through analgesics and adjuvant drugs is the initial focus of treatment (Davies & Oberle, 1990).

Attitudes, Beliefs, and Behavior of Patients and their Families

Attitudes, beliefs, and behavior of patients may interfere with management. Examples of potential problems are refusal to follow medication schedules including use of medication less frequently than prescribed (Portenoy & Kanner, 1985), consumption of medications only when pain is unbearable; concerns about taking strong drugs too early in the course of the disease (i.e., they won't be effective when needed); fear of being considered addicts; fear of altered mental status; desire to be good patients who can withstand pain; fear of being bothersome to health-care providers if they complain; and inability to tell health-

care providers that treatments are ineffective (Cleeland, 1984). Often the goal for many patients is to survive the hospital experience; to be perceived as a burden by a caregiver or to be overburdensome to caregivers may put survival at risk. Patients often fear challenging health-care providers; for example, parents felt staff did not appreciate their questions concerning issues such as the need for daily blood work (Watt-Watson et al., 1990). Weis, Sriwatanakul, Alloza, Weintraub, and Lasagna (1983) found that about one-third of the patients in their study believed that pain builds character. Although this belief was not associated with the amount of analgesics used postoperatively and the degree of patient sensitivity to pain, this belief may affect the patient's initiative in seeking pain relief. Problems associated with beliefs such as this are compounded when reinforced by families. Watt-Watson et al. (1990) provided anecdotes of experiences of mothers and children. "One parent said her son was in the hospital for fever and not pain, although he was crying during the insertion of an IV insertion while the mother was being interviewed. Another mother said of her 5-year-old son that he took his pain 'like a man'" (p. 346). Another poignant example of the effect of patient attitudes on pain management focuses on parents of children dying of leukemia. Kathleen Foley (cited in Franklin, 1988) asked these parents to describe their concerns; a concern for many was that their child would become addicted to the pain medication, not that their child would die in pain!

Patient Education

Few studies have focused on educating patients about pain. In a well-controlled study, Rimer, Levy, Keintz, Fox, Engstrom, and MacElwee (1987) examined the effectiveness of an education program using nurse counseling and printed materials with cancer patients. Patients receiving the education tended to (a) take the pain medication on the recommended schedule and in the right doses, (b) continue the medication even though they felt better, and (c) worry less about tolerance and addiction. Also addressing cancer pain, Dalton (1987) found that her patient education program with women was effective in increasing their knowledge about pain but not in changing either their attitudes about pain or their behaviors such as self-initiated pain relief methods.

Patient knowledge, expectations, communication, fears, behaviors, and attitudes may influence the treatment of pain (Table 7.1). Frequently patients do not know that pain relief is

possible (Edwards, 1990) and they feel powerless (Lander, 1990). Educational programs, however, may assist patients in understanding and addressing pain. Perhaps with education patients who experience significant pain postoperatively will not report satisfaction with their pain management (Donovan et al., 1987).

The Physician

Physicians often confine their response to pain to a pharmacologic perspective (Jacox, 1976). Physicians have difficulty in assessing the extent of suffering (Smith, 1989) but also they seldom ask their patients about pain and the effectiveness of treatment (Donovan et al., 1987; Hester, 1989). Some reports suggested physicians are satisfied with their treatment of pain (e.g., Perry & Heidrich, 1982).

Failure to Prescribe Analgesics Appropriately

Frequently physicians underprescribe analgesics and adjuvant drugs for the relief of pain (e.g., Beyer et al., 1983; Donovan & Dillon, 1987; Donovan et al., 1987; Foster & Hester, 1989a, 1989b, 1990a, 1990b; Marks & Sachar, 1973; Mather & Mackie, 1983; Morgan, 1989). Underprescription involves one or more of the following conditions: failing to prescribe *appropriate analgesics* in *adequate doses* with *appropriate intervals* for an *adequate duration of time* (Table 7.2).

The failure to order analgesics occurs most frequently for preverbal children (especially nonventilated neonates) and elderly adults. Comparisons between orders for children and adults suggest that physicians ordered analgesics more frequently for adults than children (Eland & Anderson, 1977; Beyer et al., 1983; Schechter et al., 1986). Infants and young children were less likely to have orders for opioids; and even though adults and children had similar orders for nonopioids, adults received more doses than children (4.6:1) (Schechter et al., 1986). In Australia, although 84% of the physicians ordered analgesia for neonates and 75% ordered opioids for postoperative pain (Campbell, Reynolds, & Perkins, 1989), opioid orders were fewer or lacking for nonventilated neonates (Campbell et al., 1989; Purcell-Jones, Dormon, & Sumner, 1987). More (93%) older children (4-13 years) had one or more analgesics ordered (Hester et al., 1989). Fifty-seven percent had orders for morphine sulfate; 46%, acetaminophen with codeine, and 69%, acetaminophen. Seventy percent of children with medical diagnoses had any pain medications ordered (Hester et al., 1989). In the adult population, most or all patients had orders for analgesics (Beyer et al., 1983; Schechter et al., 1986). Few had more than one analgesic order; 18% of medical and 44% of the surgical patients had orders for two or more

analgesics (Portenoy & Kanner, 1985). In England, 72% of adult patients were prescribed one or more nonopioids on a *pro re nata* (PRN) basis and 22%, opioids. About 10% had orders for two or more nonopioids and 7%, two or more opioids (Holland, Jackson, & Turner, 1988).

The use of analgesics varies with age. Adults often had more orders for opioids than did children but nonopioid orders were similar (Schechter et al., 1986). However as adults increase in age, opioid orders decrease. Portenoy and Kanner (1985) found that only 20% of patients over 60 years had orders for opioids and only 19% of patients over 80 years had orders for any analgesics. In a study with adults 25 - 107 years of age, Faherty and Grier (1984) demonstrated that analgesic orders were most frequent for adults 25 - 54 years. For patients from 55 to 107 years, analgesic orders progressively decreased. In another study, Ferrell and Ferrell (1988) confirmed that elderly adults received fewer prescriptions than did younger adults even though pain intensity was similar. Postoperative analgesic orders for children often include one or more of the following: morphine sulfate, acetaminophen with codeine, and acetaminophen (Hester et al., 1989). Anxiolytics may be ordered for children undergoing procedures (e.g., burn dressing changes) but Perry and Heidrich (1982) cautioned that the analgesic effect of anxiolytics is not well documented.

Analgesic orders often are prescribed in subtherapeutic doses for both adults and children (Burokas, 1985; Donovan & Dillon, 1987; Donovan et al., 1987; Foster & Hester, 1989a, 1989b; Mather & Mackie, 1983). For schoolage children and young adolescents, dose range (calculated on mg/kg) were 50 to 95% for morphine sulfate, 71 to 122% for acetaminophen with codeine, and 59 to 95% for acetaminophen (Foster & Hester, 1989a). For burn children, 69% of the orders were in recommended range and 13% of the orders were lower than the recommended ranges (Schnurrer, Marvin, & Heimbach, 1985). In another study, Tesler, Savedra, Wilkie, Holzemer, and Ward (1991) found that although doses of analgesics appeared to be influenced by age and weight for children and adolescents, the relationships were weak to moderate. These findings also suggested that doses of analgesics are inappropriate for hospitalized children and adolescents.

In orders for adults, studies by Donovan et al. (1987) and Donovan and Dillon (1987) indicated that average doses for morphine sulfate were 50.9 and 55.6 mg per 24 hours. Morgan and Pleet (1983) found that over 48 hours, 60% of the patients received opioids in doses of 50 mg or less at intervals greater than 5 hours. The orders, all PRN, were written for intramuscular (IM)

or oral administration without adjusting the dosage for the route. Weissman, Dahl, and Joranson (1990) noted that orders for opioids were inadequate for patients with advanced cancer.

Analgesics are frequently ordered PRN and sometimes IM. Austin, Stapleton, and Mather (1980) reported that analgesics ordered IM every four hours or PRN resulted in fluctuating blood concentrations and thus may not have provided adequate analgesia. Based on this research, Donovan et al. (1987) questioned whether the administration of analgesics PRN or IM to the patients in their study resulted in adequate blood levels to achieve pain relief. Although PRN means to give as needed, often the burden of responsibility to initiate communication about pain is placed on the patient or family, a responsibility that may be misplaced especially when a patient is ill or in the early postoperative stages. A problem with the use of IM analgesics is the infliction of pain. Children have reported that needles are the worst hurt (Eland & Anderson, 1977; Weekes & Savedra, 1988). Eland and Anderson (1977) speculated that children may deny the presence of pain to providers; they would rather endure existing pain than be subjected to the pain and fear associated with injections.

Intervals between doses are frequently longer than they should be. For example, meperidine often is ordered every four hours when three hours is the average duration of action (Marks & Sachar, 1973).

Postoperative orders suggest that some physicians expect the duration of pain following surgery to be shorter for children than for adults. On the fifth postoperative day, only 46% of children had orders compared with 96% of adults (Beyer et al., 1983). In a later study, 86% of children between the 7th and 11th postoperative days had at least one analgesic ordered (Hester et al., 1989). Hence, practices may have changed or the differences may be related to other factors such as the type of surgery or study sample.

Deficits in Knowledge about Analgesics

Researchers have attempted to discover why problems exist in the prescription practices of analgesics. One reason may be that the source of knowledge about analgesics, particularly opioids, often is the bedside experience (Morgan & Pleet, 1983). Physicians may often have knowledge deficits about the pharmacokinetics of analgesics. Marks and Sachar (1973) discovered in a survey that physicians lacked knowledge of the pharmacokinetics action of meperidine. Orders included doses below the range for effectiveness and intervals longer than the duration of action. Inadequate knowledge about addiction liability

and withdrawal symptoms may have affected the orders. However, physicians did not exhibit similar concerns about barbiturates. Later studies confirmed the suggestion that the knowledge about opioids in general is inadequate. Eighty percent of the physicians reported that their knowledge about opioids was adequate even though 68% thought oral morphine was not effective (Morgan & Pleet, 1983). In another study, physicians reported their knowledge about opioids as 45.7 on a 100 mm. scale, suggesting a moderate amount of knowledge (Weis et al., 1983). Physicians lacked skill in how to convert from one opioid to another through equianalgesic conversion (Grossman & Sheidler, 1985). Further, physicians were unable to differentiate among physical dependence, tolerance, and addiction (Morgan, 1989). According to Waldman (1990), choices of analgesics are irrationally limited, and the physician's knowledge of analgesics is inadequate.

"Placebos are commonly used by physicians...who are suspicious about the authenticity of patient's complaints, the thinking being that if the patient responds to an imaginary treatment their pain must be imaginary" (Fields, 1987, p. 311). An early study by Goodwin, Goodwin, and Vogel (1979) confirmed the use of placebos to ascertain if pain was real. Only 16% of physicians recalled formal instruction on the use of placebos. Placebos were used to determine if a patient's pain was real for patients such as alcoholics, patients for whom treatment was ineffective, and relief of staff frustration. Weis et al. (1983) found that nine percent of physicians used placebos for fictitious pain. Paradoxically, placebos can have a powerful analgesic effect (Fields, 1987). Thus, physicians also lack information about the release of endogenous opioids and their action on opioid receptors compared with actions of administered analgesics.

Edwards (1990) identified two other problems that affect practices related to prescribing. First, physicians rely on what Edwards calls the "Pain Well" concept, in which physicians order a certain amount of analgesic for a specified amount of pain a patient should have according to the type of surgery. Second, physicians use dose ranges and PRN orders to address variations across patients with similar diagnoses. According to Edwards (1990) these practices hinder effective management of pain.

Attitudes about Pain

Attitudes play an important role in the undertreatment of pain. Surveys showed that while most pediatric anesthesiologists believe neonates and infants experience pain, they are reluctant to prescribe opioids following surgery (Purcell-Jones, Dormon, &

Sumner, 1988). Most pediatricians, family practitioners, and surgeons believe that by two years of age children experience pain like adults but only 49% of the surgeons, 64% of family practitioners, and 80% of pediatricians would use opioids routinely for these children after surgery (Schechter & Allen, 1986). Thirty-eight percent were concerned with addiction. Lander (1990) concluded the addiction liability of opioids is overestimated by physicians. Another unwarranted fear is related to respiratory depression (Morgan, 1989). Based on these findings, Morgan (1989) concluded that *opiophobia* is the problem.

For 100% of the physicians, the goal for pain relief was *enough relief so that the pain is noticed but not distressing to complete relief* (Marks & Sachar, 1973). In another study, 63% of the physicians expected *enough relief so that the pain is noticed but not distressing* and only 23%, *complete relief* (Weis et al., 1983). Physician practices do not support these articulated goals. Perhaps because of knowledge deficits and prevailing attitudes, physicians still think that patients receive more pain medication than is necessary or indicated (Charap, 1978) (Table 7.2).

Education of Physicians

Edwards (1990) identified two key problems among physicians in treating pain. First, physicians receive little formal education about pain. Medical school curricula lack information on physiology, anatomy, and pharmacology, and textbooks frequently do not discuss pain. Watt-Watson and Watson (1989) surveyed medical school faculties and discovered that, in the undergraduate program, 22% had four to six hours of pain-related content while 78% had minimal or no such content. Only 22% taught students to use a recognized tool for pain assessment. Forty percent of the schools were dissatisfied with their pain-related content.

Compounding this problem is a lack of information about pain in textbooks. Bonica (1980) reviewed 9,500 pages in cancer textbooks and found that fewer than 18 pages addressed cancer pain and its treatment. Four years later, Bonica (1984) reviewed 22,000 pages in 17 medical-surgical and oncology texts; only 54 pages addressed pain. More than half of the texts had no information on pain. Later, Oden (1989) found only seven pages of text on pain in more than 10,000 pages in surgery textbooks and no mention of pain in three of five most popular surgery textbooks.

Morgan (1989) postulated that the way physicians learn about pain is part of the difficulty in undertreatment. Most physicians learn through bedside experience in a *customary mode*. They learn the process of prescribing through their peer group or by

custom. Reliance on this apprenticeship model of education perpetuates and proliferates myths, mis-understandings, and undertreatment. According to Morgan (1989), physicians claim to use patient out-comes evaluatively; yet, they ignore their failure to alleviate pain adequately. A curriculum on pain for medical schools has been proposed (Pilowsky, 1988) but has yet to be formally evaluated.

Through the Wisconsin Cancer Pain Initiative, Weissman, Abraham, Haddox, Janjan, Hopwood, and Howser (1989) and Weissman, Gutmann, and Dahl (1991) developed and implemented a physician education program on cancer pain. The three goals of the program are to increase factual knowledge, legitimize cancer pain as an important treatment priority, and develop clinical role models. An unanticipated benefit was that the program generated interest among the nurses state-wide. The nurses took leadership "within the initiative in developing and promoting quality assurance guidelines and pain assessment tools...Much of the credit for the physician education program needs to be given to...state nurses" (Weissman et al., 1991, p. 448).

Weissman et al. (1989) instituted "Cancer Pain Rounds" to facilitate the goals of the educational program. Although the "Rounds" has not yet been formally evaluated, Weissman and colleagues (1989, 1991) identified aspects that attest to its successfulness: (a) referrals for specialized treatment procedures more than doubled in the first year of the pain rounds; (b) use of nonsteroidal anti-inflammatory drugs and adjuvant drugs increased, (c) drugs were scheduled for routine administration rather than PRN; (d) issues of opioid tolerance and addiction were better understood; and (e) rounds provided a mechanism for discussion of staff disagreements regarding pain management.

These programs serve as models that could be used to change physician and potentially nurse practice. More research, however, is needed on how to optimize physician management of pain.

The Nurse

Primary responsibility for the assessment and management of pain belongs to the nurse. According to the NIH Consensus Report (National Institutes of Health, 1986), the nurse plays a central role in pain management and should coordinate the activities. Sound assessment is necessary for implementation of appropriate pain management interventions. Well documented problems within the assessment process inhibit the management of pain by nurses. Assessment and management is further compromised by certain attitudes, beliefs, and knowledge.

Difficulty in Assessing Pain

Researchers have speculated that management of pain may be limited by nurses' ability to identify pain (Beyer et al., 1983; Donovan & Dillon, 1987; Donovan et al., 1987; Foster, 1990; Heidrich & Perry, 1982; Hester & Barcus, 1986; Mather & Mackie, 1983), but little research has focused on how nurses actually assess pain. Conceptually, a high degree of uncertainty surrounds pain; no one cue or group of cues is specific for pain. Pain produces different cues and the cues are also associated with other conditions (Hammond, 1964, 1966). Patient concealment further obscures the certainty of pain identification (Atchison et al., 1986; Jacox, 1979). Pain identification is most difficult in preverbal; nonverbal; cognitively, sensory, developmentally, dis-oriented, and emotionally impaired; and very ill patients (Campbell et al., 1989; Jacox, 1976). Patients who are sleeping, seem comfortable, and are not complaining also pose problems for assessment (Watt-Watson, 1987) (Table 7.3).

Important in pain identification is differentiating it from other conditions. For example, nurses find difficulty in differentiating pain from anxiety (Beales, 1983). In the preverbal population, differentiating pain from irritability (Budreau & Kleiber, 1991) and agitation (Gordin, 1990) related to other causes poses problems.

The ambiguity associated with pain identification is evidenced in cues nurses report using to make decisions about pain (Bradshaw & Zeanah, 1986; Burokas, 1985; Cohen, 1980; Gadish, Gonzalez, & Hayes, 1988; Hester et al., 1989; Hester, Foster, & Beyer, 1992; Pomietto, 1988). Nurses tend to rely on vital signs and behaviors that are neither specific nor reliable indicators of pain. Although McCaffery and Beebe (1989) cautioned that behaviors and physiological signs may not verify the presence of pain, nurses' reliance on these parameters is evident. Research on nurses' pain judgments for children (Burokas, 1985; Hester et al., 1989) and adults (McCaffery & Ferrell, 1992) attests to the strong reliance on vital signs. Nurses frequently attribute pain to patients who behave as if they are in pain. Ferrell, McCaffery, and Grant (1991) found that more than 80% of nurses relied on the patient's activities, mobility, and behavior to determine pain. Thus, patients' behavior becomes a strong influence on whether nurses believe patients' self-reports of pain and whether they administer analgesia (McCaffery & Ferrell, 1991). The research by Martin and Belcher (1986), however, suggests that interpretation of behavior may, in part, be cultural. For example, American nurses reported screaming behavior as indicative of severe pain while African English nurses felt that quietness was reflective of severe pain.

More research is needed on how cul-tural perspectives influence pain assessment.

Although 96% of the nurses stated that patient input was important in assessing pain (Watt-Watson, 1987), nurses frequently do not ask patients about their pain (Donovan, 1989). Only 45% of medical-surgical and 43% of cancer patients recalled that nurses asked about their pain (Donovan et al., 1987; Donovan & Dillon, 1987, respectively). Frequently, when patients are asked about pain, the questions are cursory (Marks & Sachar, 1973) or nonspecific such as "How are you feeling today?" Even though research has emphasized the de-velopment of reliable and valid approaches to measure pain, especially self-report approaches, typically nurses do not use these tools (Donovan, Slack, & Wright, 1988; Foster, 1990; Hester, Foster, & Beyer, 1992; Watt-Watson, 1987). Why nurses have not adopted measurement tools to assist in the assessment of pain is not well understood. Potential reasons include: (a) dissemination of information about tools to clinicians is inadequate; (b) tools, while practical for research purposes, are impractical for clinical settings; (c) instructions for using and interpreting tools clinically are vague or nonexistent; (d) tools often are only available in English, thus limiting their applicability with other patient pop-ulations; (e) often tools have been tested only on Caucasian populations and may be inappropriate for other patient populations; (f) incorporation of tools into practice adds "one more thing" for busy nurses to do; and (g) nurses are not held accountable for assessment and management of their patients' pain. Whatever the reason, not incorporating measurement tools into practice reflects a greater issue, lack of prioritization of pain by nursing and health care institutions.

Often the only existing pain assessment guidelines are informal standards passed by oral history from more experienced to less experienced nurses (Foster, 1990). Nurses suggested that a lack of time prevented performing extensive pain assess-ments, especially in critical care environments (Puntillo, 1990). Seldom are systematic policies or procedures used (Choinière, Melzack, Girard, Ron-deau, & Paquin, 1990; Foster, 1990). Watt-Watson (1987) found that only 3% of the nurses used a stan-dard approach (e.g., visual analogue scales or flow sheets) to assess. Assessments were often non-specific, haphazard, and loosely done (Watt-Watson, 1987, p. 208).

Research on the measurement of pain has shown that nurses usually underestimate the patient's report of pain (Choinière et al., 1990; Hester et al., 1989; Marks & Sachar, 1973). (Statements regarding nurse underestimation or overestimation of pain refer to the patient's report of pain as the standard.) Mini-

mization of patient's pain (Jacox, 1976; Perry et al., 1981) is characterized in Scarry's (1985) state-ment "to have great pain is to have certainty; to hear that another person has pain is to have doubt" (p. 7). In a study on burn patients, professional experience over five years was associated with underestimation of pain while experience less than five years, with overestimation (Perry & Heidrich, 1982). This find-ing suggests that years of experience may negatively impact the sensitivity of nurses to pain (Jacox, 1979).

Whether nurses can accurately determine the amount of pain a patient has is a research issue, addressed by correlating nurse pain ratings with those by patients. Usually the correlations are positive but the magnitudes of the coefficients vary widely. In studies with adults, Teske, Daut, and Cleeland (1983) reported a relationship of .32 using a visual analogue scale while Choinière et al. (1990) reported .33 and .47 for the visual analogue scale and .31 and .41 for a verbal scale. Grossman, Sheidler, Swedeen, Mucenski, and Piantadosi (1991) examined the rela-tionship between adult patients and multiple care-givers. Their findings revealed that, on a visual analogue scale, relationships between the patient and the nurse (.38) and the patient and the house officers (.33) were the highest and the relationship between the patient and the oncology fellow (.17) was the lowest. Across all of these pairs, the relationship was highest when pain scores were between zero and two on the zero to ten scale. In studies on children, Abu-Saad (1990) reported .28 between nurses and children on a visual analogue scale. In one of the few studies that examined the relationship between child and nurse ratings on more than one occasion, Hester et al. (1989) found that the relationship was, in part, tool dependent and changed over time. The relationship between child and nurse ratings on the Pain Ladder decreased from .63 for the first pain rating to .21 on the fourth pain rating, whereas the relationship between child and nurse ratings on the Poker Chip Tool improved from .59 on the first rating to .81 on the fourth rating. These findings suggest that the accuracy of the nurse's pain rating may vary according to the tool used. More research on the use of tools over time is needed to determine whether the findings of Hester et al. (1989) are replicable with other tools used over time with nurses and patients, both children and adults.

Nurses' Reluctance to Administer Analgesics

Nurses are reluctant to administer analgesics when they are unsure of the presence, type, and amount of pain (Foster, 1990). Typically, nurses administer *less potent* analgesics in *smaller doses less frequently* to children and elderly adults than to adults even when they have the same illnesses or surgeries (Beyer et al.,

1983; Eland & Anderson, 1977; Faherty & Grier, 1984; Melzack et al., 1987; Schechter et al., 1986). Adults from 25 to 64 years receive the most analgesics and the largest doses (Faherty & Grier, 1984). Nurses are most conservative in their approaches to pain management with preverbal children and adults over 80 years.

Nurses' reluctance to administer analgesics is evident in findings that nurses often failed to administer prescribed analgesics even when they identified the presence of moderate to severe pain (Donovan & Dillon, 1987; Donovan et al., 1987; Foster & Hester, 1989a, 1989b, 1990a, 1990b; Hester et al., 1989). Even though 63% of the children were in moderate to severe pain, nurses gave analgesics only 35% of the times children could have received them (Hester et al., 1989). Similarly Johnston, Jeans, Abbott, Grey-Donald, and Edgar (1988) found that 60% of children with moderate to severe pain had received no analgesics in the previous 24 hours.

Further, nurses tend to administer only a percentage of the ordered analgesic. For example, Donovan et al. (1987) and Donovan and Dillon (1987) found that nurses administered less than 25% of the average dosage ordered while Closs (1990) reported 30-35% of the maximum doses of analgesics. Ninety percent of the patients with severe pain received less than the maximum analgesic dose (Chapman, Ganedran, Scott, & Basford 1987). Even patients who had medications ordered on a routine schedule seldom received 100% of the dose ordered. In an exploratory study, Ferrell and Ferrell (1988) found that elderly adults received less pain medication than did younger adults with similar pain intensity. In another study, elderly adults received less than 50% of the prescribed doses (Faherty & Grier, 1984). Whether these practices occur similarly across populations with different socioeconomic and cultural backgrounds is unknown.

Children and adults often experience unrelieved pain. Although studies are not available on unrelieved pain for elderly adults, findings are likely to be similar or worse considering prescription and administration patterns for the elderly adults. Hester and Foster (1991) recently reported that children who experienced moderate to severe pain on the first of four measures (over an average of four to five hours) continued to experience moderate to severe pain on three subsequent measures even if medicated. Only 8% of adults experienced *complete relief* of post-operative pain in the first 24 hours while 37% experienced *a lot of relief*; 34%, *moderate relief*; 12%, *little relief*; and one percent, *no relief* (Owen et al., 1990).

Despite this evidence, nurses are often satisfied with their treatment of pain. According to Perry and Heidrich (1982), 67% of physicians and nurses reported treatment at their burn centers as satisfactory. Rankin and Snider (1984) reported that 89% of the nurses believed cancer patients received adequate medication for pain even though 67% of the nurses assessed the patients as having moderate pain. According to Choinière et al. (1990), nurses overestimated the success for analgesia in 57% of the observations. They were correct only 16% of the time.

Deficits in Pharmacological Knowledge

Several studies have demonstrated deficits in nurses' knowledge about pharmacologic, especially opioid, management (Chapman et al., 1987; Fox, 1982; Watt-Watson, 1987). Nurses have difficulty in correctly classifying drugs as opioids. Cocaine was overidentified as an opioid while pentazocine and propoxyphene were underidentified (McCaffery, Ferrell, O'Neil-Page, Lester, & Ferrell, 1990). In the early 1980's, nurses rated their knowledge about opioids similarly to physicians: 48.4 on a 100 mm. line (Weis et al., 1983). Sheidler, McGuire, Grossman, and Gilbert (1992) concluded that nurses' knowledge about opioids was poor. Nurses were unable to assess the appropriateness and the safety of opioid order changes as evidenced by their scores on a questionnaire with four vignettes. Scores ranged from 9 to 47% ($m = 26\%$). Watt-Watson (1987) also found that nurses' knowledge was deficient: the mean score on a questionnaire was 52% correct and only 3% scored above 75%. Lack of knowledge was shown for both nurses and nursing students, their knowledge scores averaged 50% on morphine duration and 75% on meperidine. Average knowledge scores for codeine differed between the two groups: 23% for nurses and 55% for students. These figures suggest that educational programs do not adequately prepare nurses about opioids and that knowledge may diminish after completion of the educational program. Other knowledge deficits included equianalgesic conversion, appropriate dosages, and side effects. For example, only 27% of nurses correctly identified the equianalgesic conversion by route and 44% the equianalgesic conversion by drug (McCaffery & Ferrell, 1992).

Nurses overestimated the statistical risk of addiction and the incidence of respiratory depression (Lander, 1990; Marks & Sachar, 1973; Weis et al., 1983). Findings from McCaffery et al. (1990), Cohen (1980), and McCaffery and Ferrell (1992) revealed that only 25% to 41% of nurses knew that addiction occurred in fewer than one percent of patients. Only 50% of the nurses demonstrated an appropriate understanding of drug tolerance (Atchison et al., 1986). Further defi-

cits in knowledge of pathophysiology and pharmacology compound the opioid knowledge deficits. These deficits in knowledge about opioids are but a part of nurses' inadequate knowledge of drugs in general (Boggs, Brown-Molnar, & DeLapp, 1988). Scores on a drug knowledge test were higher for nurses in administration, management, and public health than for nurses responsible for drug administration. Especially low was knowledge about doses, drug interactions, mechanisms of actions, and pharmacokinetics. Despite such knowledge deficits, nurses are responsible for determining the appropriateness of the drug for the patient and the type of pain, judging the amount of analgesic from a dose range, and assessing for side effects.

As with physicians, nurses lack knowledge about placebos. About one-third of nurses and students thought the use of placebos was to learn if pain is real (Heidrich, Perry, & Amand, 1981; Watt-Watson, 1987; Weis et al., 1983).

Nurses' Use of Nonpharmacological Approaches

Although nonpharmacologic approaches have been studied less extensively than analgesics, limited findings suggest that application of heat or cold, massage, therapeutic touch, transcutaneous electrical nerve stimulation (TENS), relaxation techniques, guided imagery, hypnosis, music distraction, art and activity therapies, and other cognitive techniques may be effective measures for pain relief (Branson et al., 1990; Covelman, Scott, Buchanan, & Rosman, 1990; Eland, 1989; Fernandez, 1986; Fernandez & Turk, 1989; Fowler-Kerry & Ramsay-Lander, 1990; Gardner & Olness, 1978; Loeser, Black, & Christman, 1975; Masek, Russo, & Varni, 1984; Mayer, 1985; Varni, 1990; Wall & Sweet, 1967; Zeltzer, & LeBaron, 1982). However, because nurses legally do not need to document the use of these strategies, their use in practice is unknown.

Surveys related to neonatal intensive care units and pediatric oncology units reveal that nonpharmacologic strategies are not used systematically. Franck (1987) found that common strategies for neonates were sensorimotor (e.g., swaddling, nonnutritive sucking, touch, holding, rocking, verbal, and music). On pediatric oncology units relaxation techniques were sometimes used for bone marrow aspirations and lumbar punctures (Hockenberry & Bologna-Vaughan, 1985). Deep breathing was the most commonly applied strategy. Dalton (1989) reported that nurses taught cancer patients to use cutaneous stimulation, distraction, and relaxation and imagery. The most frequently taught strategy was rhythmic breathing.

The question of whether nonpharmacological approaches work synergistically with analgesics remains unanswered. The combined effects have not been researched.

Factors Related to Nurse Assessment and Management Practices

Research has elucidated the potential influence of patient and nurse factors on nurse assessment and management practices.

Patient factors. Patient factors include diagnosis, age, gender, ethnicity, and socioeconomic status. Nurses perceived more pain associated with physiologically confirmed *diagnoses* and with acute conditions (Taylor, Skelton, & Butcher, 1984). Certain diagnoses are perceived as more painful such as cardiovascular illnesses and trauma (Davitz & Davitz, 1981). According to Edwards (1990), diagnoses that are perceived as more painful have bigger "pain wells." For children, however, pain ratings from nurses did not differ by diagnosis (Hester et al., 1989) even though nurses reported that diagnoses were important in assessing and treating pain (Foster, 1990).

Age of the patient affects the nurses' expectation of pain. In most countries, children are expected to experience less pain than adults (Davitz, Sameshima, & Davitz, 1976). This finding may be related, in part, to ability to communicate verbally; higher verbal facility has been associated with greater inferences of pain by nurses (Baer, Davitz, & Lieb, 1970). Mason (1981), however, found that children received higher pain scores for physical pain than did adults but lower scores on psychological distress. Mason's finding confirmed the earlier work of Davitz and Pendelton (1969) who found that nurses attributed greater pain to the young. Paradoxically, nurses often choose nonopioids and lower doses of opioids for younger children (Gadish et al., 1988). McCaffery and Ferrell (1991) confirmed the earlier findings of Faherty and Grier (1984) that age within adulthood affects pain treatment. Older adults are more likely to receive less potent and fewer doses of analgesics. Choinière and colleagues (1990), however, found that age was not a factor in nurse estimations of pain nor in the reported efficacy of analgesics.

Research has yet to confirm any influence of *gender* on nurse assessment and treatment of acute pain in children (Hester et al., 1989; Holm, Cohen, Dudas, Medema, & Allen, 1989; Lander, Fowler-Kerry, & Hargreaves, 1989). In adult studies, however, findings regarding gender have been inconsistent. In some studies, nurses attributed greater suffering to females (Davitz & Davitz, 1981; Davitz, Davitz, & Higuchi,

1977) but in other studies, to males (Martin & Belcher, 1986; Taylor et al., 1984).

Zborowski (1969) associated pain expression with different *ethnicities*. Nurses perceived Jewish patients as suffering the most, followed by Spanish patients. They saw patients of Oriental and Anglo-Saxon/Germanic descent as suffering the least (Davitz & Davitz, 1981). These findings are in contrast to later findings of Holm et al. (1989) who found that race had little influence on pain assessment.

According to Davitz and Davitz (1981), patients of low *socioeconomic status* are perceived to suffer more pain. But Choinière et al. (1990) found that pain estimates and treatment efficacy were not related to socioeconomic status.

Studies on patient factors yield inconsistent findings. Most of the studies tend to focus on either univariate or bivariate analysis, thus only examining one factor singly or two factors simultaneously. Multivariate studies may provide a better perspective on the role of patient factors in the assessment and management of pain.

Nurse factors. Personal characteristics of the nurse may affect the assessment and management of pain. Personal characteristics include education, professional experience, age, and personal pain experiences. Although *education* did not influence nurses' judgments of pain in Mason's (1981) study, the level of education affected the administration of analgesics in a study by Gadish and colleagues (1988). Baccalaureate nurses provided higher doses. Sensitivity to pain decreased over the course of undergraduate education (Davitz & Davitz, 1981).

Experienced nurses used a broader range of assessment cues than did the least experienced (Bradshaw & Zeanah, 1986) but experience did not seem to influence pain management (Cohen, 1980) or analgesic administration (Foster & Hester, 1989a, 1990a). Foster (1990), using nurse individual interviews and nurse focus groups, discerned that nurses believed the years of practice, experience with analgesics, experience with illnesses, and experience with children influenced pain assessment and treatment. Research by Choinière et al. (1990) showed no significant relationships between estimation of pain and years in nursing. Experience, however, may affect nurses' sensitivity to pain. Years in nursing affected the estimation of pain related to analgesic use: more years was related to correct and underestimation of pain while less than six months of experience was related to overestimation of pain (Choinière et al., 1990; Mason, 1981). Lenburg, Glass, and Davitz (1970) found that nuns in-

ferred more physical and psychological pain than did either nurses or physicians. They postulated that experience through repeated and prolonged encounters with pain and distress decreased health care providers' sensitivity to pain. This hypothesis needs further examination with nurses who work with pain-vulnerable populations (e.g., those with sickle cell disease, cancer, arthritis).

Age of nurses has not been related to pain assessment (Choinière et al., 1990; Mason, 1981) or pain management (Cohen, 1980). Few studies have focused on the influence of nurses' *socioeconomic*, *cultural*, and *ethnic* backgrounds. Davitz and Davitz (1981) found that socioeconomic status was not related to reports of patient suffering. Martin and Belcher (1986) found that pain perceptions and attitudes among American, South African English, and African Zulu oncology nurses were similar. But according to Davitz and Davitz (1981), American nurses of North European descent inferred less patient suffering than did American nurses of African, South European, and East European descent. Findings in a study by Davitz et al. (1976) showed that Japanese and Korean nurses inferred more pain than did nurses from the United States and Puerto Rico. Although ethnicity and race have not been associated with inferences of pain, black nurses inferred more distress for both black and white patients than did white nurses.

Personal pain experiences may shape attitudes toward pain (Cohen, 1980). But few studies have examined whether personal experiences affect pain assessment and management. Davitz and Davitz (1981) and Holm et al. (1989) found that the experience of pain, especially when pain was perceived as a great amount, was related to inferring more pain in patients.

As with patient factors, studies on nurse factors tend to focus on either univariate or bivariate analysis. The inclusion of multivariate studies would strengthen the evidence regarding the role of nurse factors in assessment and management of pain.

Attitudes about Pain

Personal beliefs and attitudes affect the assessment and management of pain. The majority (63 to 79%) of nurses reported that their own beliefs about pain influenced their assessment of patient's complaints (Dalton, 1989).

Complete pain relief was a goal for only about 3% of the nurses; 58% reported a goal to relieve as much as possible and 38%, just enough to function (Cohen, 1980). For cancer patients, the goal was for 58% of the nurses to reduce pain rather than relieve it

(Rankin & Snider, 1984). Findings related to pain relief for children were 5 and 12% for complete pain relief, 61 and 63% for as much as possible, and 23 and 24% for enough to function (Burokas, 1985; Gadish et al., 1988). Determination of nurses' goals for pain relief, however, without considering drug side-effects and patient desires, may be inappropriate.

Most nurses are satisfied with their management of pain. Seventy-four percent of the nurses in the study of Chapman et al. (1987) reported that patients received adequate pain relief. More than 90% of the nurses believed that the administration of analgesics met the real needs of the patients (Cohen, 1980). Most nurses (89%) believed cancer patients receive adequate analgesics for pain control even though 67% of the nurses assessed these patients as having moderate pain (Rankin & Snider, 1984). In contrast, Heidrich et al. (1981) found that 89% of the nurses thought the treatment of burn pain was unsatisfactory. In an international survey with responses from 23 countries, only 35% of the nurses thought pain management was good while 44% thought it was partly effective (Pritchard, 1988).

Attitudes and knowledge about addiction and respiratory depression interfere with opioid treatment. A frequently stated reason for giving patients significantly less opioid than ordered is nurses' concerns with opioid addiction (Waldman, 1990) even though cases of iatrogenic addiction are rare (<1%). Perry and Heidrich (1982) reported no cases of actual iatrogenic addiction in burn patients. Respiratory depression is a primary concern for nurses working with children. Foster (1990) found that nurses were concerned about respiratory depression with the administration of opioids to children, especially infants. Nurses, however, reported that parents were concerned about addiction. Fears of overdosing, respiratory depression, and iatrogenic addiction are compelling and result in conservative pain management, prompting Cohen (1980) to suggest that nurses operate under the principle "as little as possible as infrequently as possible."

Education of Nurses

Edwards (1990) identified three problems in the education of nurses. First, nurses learn about pain management through the customary mode. Nurses, like physicians, often acquire their skills at the bedside under the tutelage of clinicians who may know little about pain assessment and management. Through the customary mode of education, nursing students learn informal unit standards (Foster, 1990) which may not reflect recommended clinical practices.

Second, education about pain is weak. Curricula and textbooks in nursing do not emphasize pain assessment and management. In a survey by Watt-Watson and Watson (1989), 48% of the nursing faculty reported that the curricula had 0 to 3.5 hours of pain content while 35% included 8 to 19 hours. Ferrell, McGuire, and Donovan (1993) found that the curricula in 14 schools included seven pain content areas with an average of 18.5 hours of teaching time. Faculty rated the effectiveness of the pain education as moderately effective in preparing graduates to relieve pain. Graffam (1990) surveyed 305 baccalaureate schools regarding pain content in the curriculum. The range of time committed to pain ranged from 2 to 15 hours. The study showed that 81% of the programs included some formal content on pain but only 8% had a separate course on pain. Most schools (82%) did not have a faculty who specialized in pain.

Pritchard (1988) found that nurses received little or no training in cancer pain management. Recognition of this inadequacy in nursing education programs led Spross, McGuire, and Schmitt (1990a, 1990b, 1990c) to recommend curricular changes in basic nursing, graduate, and continuing education programs through the Oncology Nursing Society Position Paper on Cancer Pain. These recommendations may serve as a model to stimulate changes in general pain content in nursing curricula.

Third, the paucity of information on pain in textbooks has hampered educational efforts. In 1977, Eland and Anderson noted that pediatric textbooks had little to offer about pain management. Thirteen years later the first comprehensive chapter on pain assessment and management (Stevens, 1989) appeared in a pediatric nursing textbook (Foster, Hunsberger, & Anderson, 1989). Adult care textbooks also lack adequate information on pain. Ferrell, McCaffery, and Rhiner (1992) found that only 1.6% of the pages in medical-surgical textbooks contained content on pain or comfort. Often the content in both pharmacology and medical-surgical nursing textbooks differed from the recommendations of the American Pain Society and the World Health Organization. Information on addiction, tolerance, and dependence in chapters on pain was inadequate; this information was more apt to be included in chapters on drug/substance abuse.

Changing Nursing Practice

Changes are needed in educational programs to facilitate practice changes. Through the Wisconsin Pain Initiative, nurses participated in the education program developed for physicians (Weissman et al., 1991); in fact, they assumed leadership roles in development and promotion of pain assessment tools and

quality assurance guidelines. While the effects of the nurses' involvement in this program are unknown, the development of such innovative educational programs may demonstrate how to optimize nurse decision-making in the management of pain in practice settings.

Nursing behaviors related to pain management have been altered through education (O'Brien & Konsler, 1988) and adoption of a pain management flow sheet (Stevens, 1990). O'Brien and Konsler (1988) studied the effects of a pain management education program on analgesic administration practices. Findings suggested that continuing education programs may be effective, at least initially, in encouraging nurses to administer more potent analgesics. Stevens (1990) found that using a flow sheet for documentation of pain resulted in less pain for children. Nurses who used the flow sheet increased the frequency of pain assessments and used more analgesics. These studies are promising for the potential malleability of pain management behaviors. More studies need to focus on innovative strategies that change nurse and physician behaviors, thereby altering patient outcomes.

The Organization

Although research has provided information on patients, physicians, and nurses, no studies have addressed the interactions among these individuals. Communication, collaboration, and cooperation among these individuals are necessary to optimize the patient's pain management. Although not directly related to pain, the APACHE (Acute Physiology and Chronic Health Evaluation) studies in critical care showed that when nurse-physician communication and collaboration were good, morbidity and mortality decreased (Knaus, Draper, Wagner, & Zimmerman, 1986). Studies such as these may serve as models for addressing the interaction among patient, physicians, and nurses.

However, examining the interaction among patients and health-care providers is incomplete if the organization and society are not considered. As suggested in the conceptual model (Figure 7.1), the interaction of patients, physicians, and nurses occurs within the context of the organization and society. This context can encourage or inhibit the management of patient pain (Foster, 1990) (Table 7.4). Coeling and Wilcox (1988) reported findings of a study identifying unique contextual factors of two nursing units. The units were compared on several themes including "following established standards" and "change." Findings of this study reflected broad variations in unit culture and suggested that knowledge of unit culture may be critical to interpretation of staff attitudes and behaviors. Within an organization, different unit cultures may co-exist, each with its own values (Foster, 1990). Further, organizational factors influence the priority given

to pain management. Strauss, Fagerhaugh, and Glaser (1974) stressed the importance of the organization's influence on pain management through their model, which addresses the importance of the general organizational setting, the work entailed in managing pain, and the consequent interaction between staff and patients.

Lack of Emphasis on Pain Management

Concern for effective pain management is relatively recent. Max (1990) contended that the problem of undertreatment of pain is related to its visibility within organizations. In the 1970s pioneering studies of unrelieved pain in adults (Marks & Sachar, 1973) and children (Eland, 1974; Eland & Anderson, 1977) brought the issue of inadequate treatment to the attention of the health-care profession. Since those early studies, pain research has escalated dramatically and pain has become a priority issue for several federal agencies that fund health care research. However, clinical practice does not reflect the same emphasis on pain management.

Pain has low visibility in most health-care organizations. The visibility of pain is increased when units or institutions provide written information on the roles and responsibilities of health-care providers in managing pain; generally, written information is not available. For example, Choinière et al. (1990) noted the lack of systematic policies on hospital units. Farley (1989) reported that each organization has its own set of communication rules, which affect communication interaction and govern conditions under which information exchange occurs. Communication rules may be implicit or explicit. Farley's position is exemplified in Foster's (1990) study which revealed that *none* of five units represented in a study of pain management practices at a large, western hospital had written policies for the assessment or management of pain. Hester, Foster, Vojir, and Miller (1992) concluded: "Because policies are usually applied to those situations deemed the most complex or most important (Bolman & Deal, 1988; Crow, Chapman, & Roe, 1988) and because policies translate core values and beliefs (Bell, 1988; del Bueno & Freund, 1986; Denison, 1990), an absence of policies related to...pain reflects a lack of emphasis on pain assessment and management" (p. 40).

Although none of the hospital units in Foster's (1990) study had written policies for pain management, all had unwritten standards that influenced nursing interventions. These standards were transmitted verbally from senior staff to new nurses on the unit. Informal (unwritten) standards tend to focus on adequacy rather than excellence. Vladeck (1988) noted, "Given

the widespread human tendency to get by, to do just enough, to satisfy rather than maximize, standards set too low or too broad may promote mediocrity" (p. 103). As an example, the unwritten standards documented by Foster (1990) primarily concerned medication of children in the first 48 hours after surgery, with no guidelines for pain management of children with medical diagnoses or those who were several days postoperative. Foster's findings corroborated those of Hester et al. (1989) who found that children with medical diagnoses were medicated significantly less frequently than children who were postoperative, and that they rarely, if ever, received narcotic analgesics.

Failure to Document Pain

Documentation of pain is not a priority for organizations. According to Camp and O'Sullivan (1987), documentation "formalizes the pain assessment process and is essential to the provision of care from both professional and legal perspectives" (p. 593). Nurses generally do not document information about pain. Documentation of pain as a problem for the patient was evident in only 32% of the nursing care plans; pain occurred in progress notes of only 49% of the charts even though all patients in the study had experienced pain (Donovan et al., 1987). Fox (1982) noted inadequate information on pain assessment in the charts of 30 oncology patients. Fewer than 50% of the assessments provided by patients were evident in the documentation (Camp & O'Sullivan, 1987).

While documentation about pain is often lacking, Perry et al. (1981) suggested that health-care providers may minimize patients' pain. Minimization is of concern particularly when health-care providers inflict pain during procedures such as in burn dressing changes. McMillan, Williams, Chatfield, and Camp (1988) found that when pain flow sheets were used for documentation, pain intensities were lower. Tentatively, these findings suggested that the presence of a flow sheet may influence how nurses care for patients in pain.

Documentation of analgesics given to the patients is required legally. Medications, however, may have multiple actions. In the Hester et al. (1989) study, a nurse cautioned the investigator that the acetaminophen was given for a fever, not pain. No such notation was evident in the chart.

Without documentation, patterns of pain and pain relief are not readily visible. Lack of documentation also hampers quality care and puts the health-care provider and institution at risk in legal actions. Legal decisions have been made in the patient's favor when documentation was lacking (e.g., Messner vs.

AMI, Brookwood Hospital, 1982 cited in Camp & O'Sullivan, 1987). A legal dilemma exists with documentation: if pain assessment is documented and inadequate pain medication is given, the nurse may be liable for inadequate care. However, the question arises whether a lack of documentation results in less liability. Thus, documentation is surrounded with concerns of omission and commission.

Quality assurance programs generally do not include a review of pain management. The lack of inclusion of pain management in these programs reinforces the assumption that pain is prioritized in health-care organizations.

The Society

The organization functions within society, which also may constrain practices related to pain management. Hill (1989) stated that inadequate treatment stems from the drug problems within society. He emphasized that the drug-oriented society promotes drug treatment of illness but responds with restrictive legislation and mores when faced with serious drug abuse by the populace. Society does not distinguish between persons using drugs for recreational purposes from those needing drugs for medical purposes, especially pain control. Therefore, Hill (1989) contended that public confusion prevails over legitimate and illegitimate uses of drugs. This confusion affects social attitudes, health-care provider prescription and administration behaviors, and patients' receptivity to proposed treatments.

The "Just Say No to Drugs" campaign, while a credible effort to decrease drug abuse, sends a message that drugs are dangerous and should be avoided (Joranson, 1990). The program fails to inform individuals when the use of drugs is appropriate, that is when to say yes to drugs.

The "War on Drugs" has resulted in opiophobia and often medical access to legitimate medications is restricted or eliminated (Angarola, 1990). For example, some states have initiated regulations requiring triplicate prescriptions for Schedule II controlled substances. To comply with these regulations, physicians must apply for triplicate prescription forms and they must send the completed forms to the reporting agency but a specific agency has yet to be declared as the reporting agency. Effects of triplicate prescriptions include substantial (greater than 50% for opioids) reductions in prescriptions of Schedule II controlled substances (Angarola, 1990; Jaffe, 1985; Joranson, 1990), reductions in states' per capita consumption of Schedule II controlled substances (Joranson, 1990), corresponding increases in Schedule III substances (Joran-

son, 1990), and reduction in physician requests for triplicate forms (Joranson, 1990).

Public access to potent opioids is limited by availability in pharmacies. In a survey of more than 1000 pharmacies, Kanner and Cooper (1989) found that only 38% stocked oral morphine; 33%, levorphanol tartrate; 56%, methadone hydrochloride; and 75%, hydromorphone. The most common reasons for not stocking these drugs were fear of robbery, inadequate prescription demand, fear of addiction, low profit margin, and difficulty in obtaining supply from the wholesaler.

Opiophobia, state regulations, and inadequate pharmaceutical stocking contribute to the undertreatment of patients in pain. The societal impact of these issues is that the patient with pain becomes the unintended victim (Angarola, 1990). Joranson (1990) urged that "efforts to control drug abuse occur at the same time as efforts to reduce pain and suffering--neither should impede the other" (p. S19).

Research Needs and Opportunities

Strategies for changing practice must be multifactorial, multidisciplinary, and multilevel, addressing all components of the model (Figure 7.1): The Patient, The Physician, The Nurse, The Organization, and The Society. Few studies have focused on changing practice. Studies are often conducted without theoretical or conceptual frameworks, and they focus on single dimensions of the undertreatment of pain.

Review of the literature reflects ample documentation of the problem of undertreatment and suggests that lack of emphasis on pain and on practice policies, standards, and guidelines for pain assessment and management may contribute substantially to the problem (Eddy, 1990a, 1990b, 1990c). The release of the acute pain management guidelines by the Agency for Health Care Policy and Research (Acute Pain Management Guideline Panel, 1992) and those from the International Association for the Study of Pain (Ready & Edwards, 1992) may help to overcome the problems associated with the undertreatment of pain. But no studies have been published on the effects of pain management practice policies, standards, and guidelines on provider attitudes and behaviors and pain-related outcomes for the patient. The effect of the AHCPR guidelines on patient outcomes will be evaluated in the near future.

As health care enters an era of emphasis on assessment and accountability, efforts to associate outcomes with provider behaviors are increasingly justifi-

fied (Relman, 1988; Vladeck, 1988). Previous research has substantially documented the problem of undertreatment of pain and a cadre of assessment tools have emerged. Nursing practice must change to include pain as a priority. To that end, innovative strategies must evolve and be tested in regard to their relative effectiveness in altering practice.

Quality assurance standards proposed by the Committee on Quality Assurance Standards of the American Pain Society (1991) need implementation. Their effect on provider behaviors (e.g., prescription and administration of analgesics), documentation, and patient pain and satisfaction needs to be determined.

Many institutions are attempting to address the problem of pain management through the use of pain services. Most studies have focused on programs for the treatment of chronic pain (Cohen, Heinrich, Naliboff, Collins, & Bonebakker, 1983; Dolce, Crocker, Moletteire, & Doleys, 1986; Malec, Cayner, Harvey, & Timming, 1981; Moore & Chaney, 1985; Peters & Large, 1990). Similar research is needed to focus on pain services for acute pain. Most articles on acute pain services describe the programs but lack information on their efficacy (Berde, 1991; Berde, Sethna, Masek, Fosburg, & Rocklin, 1989; Gaukroger, Tomkins, & van der Walt, 1990; Loeser, 1991; Ready, 1991; Ready & Wild, 1989). Various types of pain services need to be surveyed and the programs subsequently evaluated. An evaluation of one pain service revealed that documentation focused on pharmacological but not nonpharmacological strategies and that documentation of pain intensity and pain relief was inconsistent. Without adequate documentation, the effects of the services on behaviors and attitudes of health-care providers and on patient variables such as pain relief and satisfaction with pain management will remain unknown.

Whereas factors related to the patient, physician, and nurse frequently are considered in discussions of influences on pain assessment and management, factors related to the hospital setting rarely have been considered by pain researchers. But the relevance of contextual variables to patient outcomes is being recognized (Coeling & Wilcox, 1988; del Bueno & Vincent, 1986; Miller, 1987; Valentine, 1989) and this recognition needs to be extended to pain management. Recognizing the influence of contextual variables on the behavior of individuals, Deal and Kennedy (1984) asserted that contextual factors are often critical barriers to change in the work environment. Research needs to focus on organizational barriers to change and to alter them to facilitate change in the institution.

Despite emphasis in nursing administration on examining relationships between nursing services and quality patient care (American Organization of Nurse Executives, 1987; Henry, Moody, Pendergast, O'Donnell, Hutchinson, & Scully, 1987; Henry, O'Donnell, Pendergast, Moody, & Hutchinson, 1988), administration research poorly reflects the importance of this issue. Schultz and Miller (1990) reported that very few nursing administration studies explored the relationship of nursing care to health outcomes. Pain-related outcomes were not listed among the outcomes studied.

Although organizational factors influence patient outcomes (Verron & Mark, 1991), they have not been studied. Hinshaw (1989) urged the study of organizational factors as they influence behavior and affect patient care outcomes. Organizational and contextual variables have been classified as goals, administrative system, production system, and technology system (Kimberly & Evanisko, 1981); social structure, participants, goals, and environments (Scott, 1981); and strategic, technological, human/cultural, structural, and managerial factors (Burrell & Morgan, 1979). The American Organization of Nurse Executives (Ad Hoc Committee on Nursing Administration Research, 1986) identified research priorities for nursing administration, which focus on organizational variables that may affect patient outcomes from interventions applied within different settings.

Many patients obtain care in a variety of settings. Pain research has been conducted primarily in the hospital setting. Research is needed on pain management for patients who have day surgery and/or receive home and outpatient care. Ferrell and Schneider (1988) emphasized the need for evaluation of pain management provided through home care and challenged nurses to address this issue.

Societal programs such as state-level cancer pain initiatives (Wisconsin Pain Initiative, 1988) and the World Health Organization program (Stjernsward, 1988; Takeda, 1991; Ventafridda, Tamburini, Caraceni, Conno, & Naldi, 1987) need continued implementation and evaluation. Other societal issues such as medical and public access to potent opioids need critical examination; effective strategies are needed to overcome the barriers. Such research may influence the formation of national social, regulatory, and health policies.

Research to address the undertreatment of pain needs to focus on all aspects denoted in the conceptual model (Figure 7.1). Research that addresses the issues contextually will enhance knowledge development greatly. Innovative research methodologies and pro-

grams of change are needed to conduct contextually relevant research. Christman (1991) suggested that "persons who introduce the best innovations in outstandingly creative ways will be powerful contributors to the health-care delivery system" (p. 17).

Recommendations

Based on the assessment of research needs and opportunities, the Panel has made the following recommendations related to changing nursing pain management practices.

- Determine the effects of innovative pain management educational programs on patient and health-care provider behaviors, attitudes, and knowledge.
- Evaluate the interaction among patients, physicians, and nurses within the organizational context on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.
- Identify organizational variables that affect the effectiveness of pain management programs on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.
- Evaluate the effectiveness of programs designed to change pain management practices.
- Examine ways to address the education-practice gap related to pain management.
- Determine the effects of informal unit standards that guide pain management practices on clinical units.
- Evaluate the effectiveness of formalized standards, policies, and guidelines for managing pain on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.
- Evaluate programs for educating the public about pain.
- Examine the costs, benefits, and risks of pain management programs in various settings such as the hospital, day surgery, clinics, and home care.
- Evaluate the effectiveness of acute pain management services on patient outcomes such as pain, anxiety, satisfaction with care, length of stay, and costs.

- Evaluate the effectiveness of societal programs such as state-level cancer pain initiatives and the World Health Organization pain management initiatives on the undertreatment of pain.

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